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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,595	11/01/2002	Darin R. Okerlund	125974	2440
23413	7590	06/16/2006	EXAMINER	
CANTOR COLBURN, LLP			SMITH, RUTH S	
55 GRIFFIN ROAD SOUTH			ART UNIT	
BLOOMFIELD, CT 06002			PAPER NUMBER	
			3737	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/065,595

Applicant(s)

OKERLUND ET AL.

Examiner

Ruth S. Smith

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 16-18, 20-28, 30 and 34-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-18, 20-28, 30 and 34-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/17/06</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### ***Claim Rejections - 35 USC § 112***

Claims 48,49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. With regard to the 3D model generated and stored, the specification fails to set forth how the model can be **any combination** of the examples set forth.

Claims 1-13,16-18,20-28,30,34-37,40,42-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, fails to disclose the use of “at least three geometric markers”.

### ***Claim Objections***

Claims 1-13,16-18,20-28,30,34-37,40,42-49 are objected to because of the following informalities: In claim 1, line 22, “the geometric marker” and “the anatomical landmark” each lack antecedent basis. In claim 1, line 24 is confusing in that the claim fails to positively set forth that the 3D model includes the three geometric markers. In claim 1, line 27-28, “the anatomical landmark” lacks antecedent basis. In view of the limitation in claim 1 regarding the use of 3 geometric markers, it is unclear as to whether the limitation set forth in claim 11 refers to a different marker or one of the three previously set forth. In claim 16, line 14, it is unclear as to whether landmark should be landmarks. In claim 17, “landmark should be landmarks and marker should be markers. Claim 24 is confusing in that it only refers to a single marker, however, claim 16 refers to three markers. In claim 27, “the geometric landmark” lacks antecedent basis. The

limitation set forth in claim 37 appears to be redundant in view of the limitations set forth in claim 16. In claims 48,49, it is unclear as to what structure/steps applicant is referring to by the recitation of "at least one of the foregoing image formats". Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 38,41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al in view of Langberg et al or Foltz et al. Liu et al disclose angiographic imaging which includes vessel tracking. The vessel tracking includes determining whether an arterial phase or a venous phase contrast study is under review. Liu et al disclose that the vessel segmentation can be performed using any known post-processing technique. It is well known in the art to image the coronary sinus. Examples of such are seen in Langberg et al and Foltz et al. It would have been obvious to one skilled in the art to have modified Liu et al such that the vessel being tracked involves the coronary sinus.

Such a modification merely involves the selection of a well known area of the body to be imaged for diagnostic purposes.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lui et al in view of Langberg et al or Foltz et al as applied to claim 38 above, and further in view of Subramanyan et al, Chen et al (WO 96/10949). Lui et al discloses that angiography enables surgical planning and treatment. Subramanyan et al disclose a method and apparatus for interventional procedure planning (such as placement of a stent) using a user interface (44) and a post-processing system (40, 48) for marker (72, 280) placement and viewable parameter selection (fig. 9-11). Subramanyan et al also disclose saving a viewable image, anatomical landmark, etc. (34, 46) to be exported to user interface (44). See fig. 1. Subramanyan et al further disclose wherein the post processing software further performs image rendering (242) and vessel tracking along a centerline (82). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to employ the user-interface and post-processing software of Subramanyan et al. in the invention as taught by Lui et al to enable vascular tracking and visualization in 3D from multiple directions and to allow intuitive graphical feedback and interaction with the physician. Furthermore, although Subramanyan et al disclose saving the image data, a database is not addressed explicitly. Chen et al. discloses a system and method for anatomical visualization of structures demonstrating that image databases (e.g., 10) are well known. Therefore it would have been obvious to one skilled in the art to have further modified Lui et al such that the image data is saved to an image data base as is a well known expedient in the art.

### ***Response to Arguments***

Applicant's arguments filed April 12, 2006 have been fully considered but they are not persuasive. With regard to the rejection of claims 38-39,41, Liu et al disclose that the vessel segmentation can be performed using any known post-processing technique and dynamic segmentation is considered to be a known post-processing technique.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S. Smith whose telephone number is 571-272-4745. The examiner can normally be reached on M-F 7:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Ruth S. Smith', with a stylized, overlapping flourish at the end.

Ruth S. Smith  
Primary Examiner  
Art Unit 3737

RSS